DEPARTMENT OF THE ARMY
U.S. ARMY ABERDEEN PROVING GROUND
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

AMSSB-DIC

6 MAY 2004

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Green Building Policy

1. In accordance with Presidential Executive Orders 13101, 13123, 13134, and 13148; the Federal Acquisition Regulation; and Department of Defense Directives, Aberdeen Proving Ground (APG) adopts this Green Building Policy to integrate pollution prevention goals into all phases of all construction projects at APG. This policy supercedes the APG Green Building Initiative Policy of 16 June 1998.

2. This policy represents APG's position that all personnel and contractors shall perform design projects and undertake new construction and renovations with knowledge and consideration of their potential effects on natural and man-made environments. To this end, every effort shall be made to accomplish the following goals.

a. Prevent pollution in all project stages.

b. Conserve natural resources.

c. Minimize adverse effects on biological and human environments.

d. Maintain historical and cultural integrity.

3. Under this policy, preference shall be given to construction, demolition, and renovation practices that accomplish the following objectives.

a. Employ environmentally sound practices in site selection, layout and landscape.

b. Mitigate adverse air quality effects on the atmosphere as well as the indoor environment.

c. Protect and conserve water resources.

d. Maximize energy efficiency and use of renewable energy sources.

e. Minimize adverse acoustical effects.

f. Maximize recycling and waste minimization.

4. The goals and objectives set forth by this policy shall be given full consideration early in the planning and design stages and shall be incorporated into the Design Review Process. When assessing feasibility of green building practices, long-term use and operation and maintenance issues shall be considered. Green building practices shall be adhered to during all stages of project execution.

5. Consistent with the Federal Acquisition Regulation, the statement of work for facility design contracts shall require that the architect-engineer specify, in the construction design specifications, use of the maximum practicable amount of recovered materials consistent with the performance requirements, availability, price reasonableness, and cost effectiveness. In addition and to the extent practicable, the specifications shall require consideration of energy conservation, pollution prevention, and waste minimization.

6. The enclosed Green Building Practices Guide will aid the incorporation of green building protocols into architectural design and construction. The contractor shall certify that the percentage of recovered material content for Environmental Protection Agency designated items (identified in the enclosed Recovered Materials Advisory Notice) is at least the amount required by the applicable contract specifications.

7. Consistent with this policy, APG seeks to preferentially select contractors who demonstrate experience with reuse, recycling, and deconstruction methods and elect to use them.

8. The point of contact for this matter is Mr. Robert Solyan, Pollution Prevention Program Manager, Directorate of Safety, Health, and Environment, 410-306-2275. Additional guidance is provided in the APG Pollution Prevention Resource Manual, Green Building Module.

FOR THE COMMANDER:

MARDI U. MARK
Colonel, OD
Deputy Installation Commander

Encl

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GREEN BUILDING PRACTICES GUIDE	CHECK IF APPLICABLE
A. SITE SELECTION	
Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site. Select site based on functional adjacencies/relationships and land use compatibility.	☆ A star indicates a mandatory practice.
B. ACOUSTICAL ISSUES *CONSIDER ACOUSTICAL IMPACTS OF ACTIONS*	
Regulatory Requirements. Comply with applicable regulatory guidance governing noise, including the federal Occupational, Safety and Health Act (OSHA), which sets limits on noise levels in certain types of workplaces, and local laws that regulate noise levels of various land uses.	☆
Site Development and Design. Separate noise-producing land uses and activities from noise-sensitive land uses and activities, such as office space and living areas. Noise-producing elements include loading docks, mechanical equipment rooms, manufacturing operations, artillery testing areas, food preparation areas. For example, separate a truck dock with 24-hour operations from a housing area; segregate cooling and exhaust systems from living quarters.	
Topographic and Landscape Noise Mitigation. Use natural or artificial topography or landscape to control the transmission of noise. For example, construct acoustic fencing to mitigate noise. (Constructed earthen berms are generally more effective in acoustical screening than natural barriers such as trees and vegetation.)	
A.3 Special Design Features. Design special structural features to control noise intrusion. Increasing wall and floor thickness can control noise transmission. High-performance window-glazing systems, wide-air-space glazing systems, and laminated insulating units offer better performance than standard insulating glass.	
A.4 Equipment Selection. Use source control measures to prevent the emission of unwanted sound by selecting equipment based on acoustical properties. For example, select equipment that encloses noise-producing elements to insulate sound or uses antivibration techniques and silencers to absorb sound.	
A.5 Surface Finishes. Select surface finishes that balance hard, acoustically-reflective surfaces (e.g., concrete) and soft absorptive materials (e.g., gypsum) to facilitate needed speech projection and to control echoes and excessive buildup of unwanted sound in other areas. For example, carpet on surfaces enhances noise absorption.	
AIR QUALITY ISSUES *MINIMIZE ADVERSE IMPACTS TO INDOOR AND ATMOSPHERIC AIR QUALITY*	
Regulatory Requirements. Comply with regulatory guidance governing indoor and atmospheric air quality, including the federal Clean Air Act, OSHA, and state and local laws.	☆
B.1 Air Pollution Control Systems. Integrate chemical and mechanical air pollution control equipment into design to control emission of air pollutants and odors at the source. Control measures may include adjusting height and direction of chimneys, stacks, and vents.	
B.2 Protection of Air Intakes. Design ventilation systems to ensure exhaust is emitted downwind from air intakes and windows. In locating windows and air intakes, consider atmospheric conditions (e.g., prevailing winds, local turbulence, and changes in micro-climate that may result from new structures) and local air pollution sources (e.g., loading docks, parking garages, and machine repair shops).	

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B.3 Emission-Location Consolidation. Consolidate emission points in facility design as appropriate to reduce the amount of monitoring necessary. This is applicable to manufacturing operations and laboratory facilities.	
B.4 Indoor Air Circulation. Design air distribution system to deliver air evenly and with adequate ventilation and humidity levels to minimize dust circulation and mold growth. For activities that generate airborne contaminants, prevent the concentration of contaminants in any one area. For example, provide greater circulation in computer rooms and laboratories than in hallways.	☆
B.5 Volatile Organic Compound (VOC) Reduction. Minimize VOC off-gassing by selecting paints, finishes, sealers, and other products with low VOC content. For example, substitute water-based products where possible; and minimize use of foam products containing glues (including certain carpet padding and furniture padding).	
B.6 Ozone-Depleting Chemical (ODC) Reduction. Comply with ODC policy, which includes discontinuing the use of equipment containing ODCs. Until an ODC-containing product has been replaced, minimize the use and ensure proper handling of equipment containing ODCs; this includes insulation, cooling, and refrigeration equipment containing chlorofluorocarbons and fire suppression systems containing Halon 1301.	
B.7 Indoor Air Pollutant Control During Construction and Maintenance. Place construction areas under slight negative pressure to prevent dust dispersion to other areas and/or enclose work areas when using a spray gun and other tools that can generate and disperse pollutants. Ventilate areas when using products that produce vapors and fumes.	
B.8 Atmospheric Particulate Matter Control. Use dust suppression techniques to control fugitive dust. For example, regular dry-sweeping; wetting of stockpiles and haulage roads; and enclosing conveyor belt delivery systems, rubble drop-off, and sandblasting activities. During construction, minimize destruction of vegetation, and plant rapidly growing plants around site perimeter to remove particulate matter from the air.	
B.9 Outdoor Operating Procedures During Adverse Weather Conditions. Discontinue construction activities that generate particulate or dispersible pollutants during adverse weather conditions. For example, postpone sandblasting during periods of high wind and postpone painting activities on high-ozone days.	
ENERGY EFFICIENCY AND RENEWABLE ENERGY ***MAXIMIZE ENERGY-EFFICIENCY AND USE OF RENEWABLE RESOURCES***	
Regulatory Requirements. Comply with regulatory guidance governing energy efficiency and renewable energy, including the federal Energy Policy Act and state and local laws.	
C.1 Building Envelope. Integrate building envelope (structures such as walls, windows, and doors that separate the inside from the outside) with other elements, including material selection, passive solar strategies, HVAC systems, and lighting strategies. For example, roof overhangs sized to respond to solar angle at the site can shade windows in the summer and provide direct sun and heat in the winter.	☆
C.2 Active Solar Features. Integrate active solar design features after consideration of passive and energy-conserving strategies. For example, design solar collector systems for water heating, space heating, pool heating; integrate the use of solar cells to produce electricity for remote activities.	
C.3 Passive Solar Features. Design passive solar features to optimize heating, cooling, and thermal storage features and daylighting opportunities. Position and design facility to take advantage of southern exposure. For example, locate heat-sensitive activities, like computer equipment, in naturally cooler areas. Large south-facing windows collect heat during day and heavy curtains drawn at sunset retain heat for warmth at night. Design south-facing masonry wall to collect/store heat.	

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C.4 Energy Saving HVAC Features. Design energy-saving features into HVAC systems, including variable-air-distribution systems (such as zone temperature control) and scheduled operation that controls air-flow based on time-of-day, holiday, and seasonal variations.	
C.5 Duct Design, Sealing, and Insulation. Properly route, connect, fasten, seal, and insulate ducts to ensure efficient air distribution and to minimize loss of hot or cold air. As an alternative to conventional elevated ducts, for certain uses, design under-floor distribution systems.	
C.6 Thermal Load Balancing. Reduce cooling demands in summer and maximize heating opportunities in the winter by balancing thermal loads generated internally (from occupants, lighting, and equipment) with externally-generated thermal loads (from the sun).	
C.7 Lighting Products and Appliances. Use energy-efficient lighting fixtures and bulbs and energy-efficient appliances. For example, compact fluorescent bulbs and products with the Environmental Protection Agency (EPA) *Green Lights Program* approval, residential water heaters with 0.06 energy factor, and point source water heaters.	
C.8 Lighting Techniques. Develop a *lighting control strategy* that incorporates *scheduling* to ensure lights are off when spaces are not in use (for example, use of occupant sensors or manual switching), *tuning* to reduce power to lights in accordance with lighting needs of use and task, and *daylighting* to reduce power usage or turn off lights in presence of natural daylight.	
HISTORICAL AND CULTURAL PRESERVATION ***MAINTAIN HISTORICAL AND CULTURAL INTEGRITY OF STRUCTURES AND AREA***	
Regulatory Requirements. Comply with regulatory guidance governing historical and cultural resources, including the federal National Environmental Policy Act and the National Historic Preservation Act, and state and local laws.	
D.1 Cultural Resources Management Plan (CRMP) Compliance. Comply with the National Historic Preservation Act and perform construction in a manner consistent with APG CRMP.	☆
D.2 Cultural/Historical Survey and Inventory. Check the CRMP (Vol. III) to ensure that structures/sites of cultural/historical significance are not affected adversely by the project; if a structure/site has not been inventoried, schedule a cultural survey prior to groundbreaking.	☆
D.3 Materials/Structures with Historical Value. Materials/structures with historical value must be left undisturbed or removed for reuse in other buildings of similar period; materials may not be discarded without prior approval from the cultural resources manager.	☆
D.4 Maryland Advisory Council Approval. Obtain approval from Maryland Advisory Council before modifying a structure of cultural/ historical significance.	☆
D.5 Discovery of Artifacts or Human Remains. Contact DSHE if historical/archaeological artifacts are discovered during any phase of the project. Contact Military Police if human remains are discovered during any phase of the project.	☆
RESOURCE CONSERVATION ***DESIGN TO CONSERVE NATURAL RESOURCES***	
Regulatory Requirements. Comply with regulatory guidance governing natural resources, including the federal National Environmental Policy Act and state and local laws.	

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E.1 Maximize Flexibility in Anticipation of Future Changes. Incorporate mobile and temporary elements (building components, equipment, and furnishings) to maximize flexibility for future uses, minimizing long-term material needs and waste. For example, movable partitions instead of walls can designate office spaces, and outlets can be located to serve different uses (e.g., office, conference room, kitchen).	
E.2 Adaptive Reuse. Modify and convert existing structures and land uses to meet new and changing needs. For example, convert unused barracks into offices to minimize demolition.	
E.3 Framing Methods. Use framing techniques that use less material than conventional framing. For example, increased spacing of joists and studs as well as in-line framing techniques that increase strength and reduce material needs.	
E.4 Landscape Care and Maintenance. Define a long-term landscaping care and maintenance plan to sustain or restore habitat. In the plan, define plant selection; fertilizer and pesticide method; application procedures and rates; mulching, pruning, and mowing practices; maximum tree size; optimum turf height; and composting methods.	
E.5 Life-Cycle Assessment (LCA). Design structures and select building materials and equipment with consideration to life-cycle principles and durability. Perform life-cycle assessments to facilitate selection of materials that balance environmental and economic issues.	
E.6 Materials and Products Containing Recycled Content. Use building materials and components containing postconsumer recycled materials (e.g., crushed concrete from demolition for road beds or aggregate, gypsum/insulation containing recycled fiber, cement/masonry bricks containing fly ash, carpet padding/materials containing recycled plastic, tile flooring containing recycled glass).	
E.7 Low-Maintenance Materials. Use products and equipment that require minimum maintenance especially maintenance that generates air pollution, including stripping, refinishing, and gluing. For example, use vinyl-coated drywall for internal walls instead of wallboard that requires regular painting or refinishing; use exterior materials that do not require refinishing (e.g., brick and aluminum).	
E.8 Government Surplus. Use government surplus for building materials, components, and furnishings (e.g., doors, windows, paint, appliances, furniture). Have low-valued surplus modified or processed to meet a new need; for example, have plate glass cut down to meet the specifications for a new window.	
E.9 Indigenous Building Materials. Use indigenous building materials to the maximum extent possible (e.g., locally manufactured products to reduce shipping costs and locally grown wood); and avoid products supplied from nonrenewable resources (e.g., plastic products without recycled resins, wood from old-growth forests and tropical forests).	
WASTE MANAGEMENT *MAXIMIZE RECYCLING AND WASTE MINIMIZATION*	
Regulatory Requirements. Comply with regulatory guidance governing solid and hazardous waste management, including the federal Resource Conservation and Recovery Act (RCRA), and state and local laws.	☆
F.1 Construction and Demolition (CD) Debris Recycling and Reuse. Maximize CD debris recycling and reuse by setting an aggressive CD debris recycling goal of 50% or higher. For example, segregate brick for use in new construction, crush old concrete for use as bedding for paved areas, and obtain shipments in returnable containers and pallets.	
F.2 Construction and Demolition Debris Hauling and Disposal. Ensure CD debris hauling/disposal contracts support recycling and control pollution. For example, as-needed pickup service, covers for roll-off containers to control leachate production, leak-proof containers to prevent leachate runoff, and maximum recycling and reuse opportunities.	

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F.3 Deconstruction Methods. Employ deconstruction methods that dismantle and reuse building components to reduce CD debris. (Plan ahead to identify markets and market specifications for salvaged materials.) Materials may include bathroom fixtures, piping, and framing materials, wallboard, fixtures, windows/doors, carpeting, tiles, nonasbestos roofing shingles.	
F.4 Hazardous Waste Minimization. Select materials with the least hazardous components to minimize the hazardous waste stream associated with the final disposal of such materials. For example, use nontoxic and water-based products (e.g., paints and cleaners) to avoid the need for and cost of hazardous waste disposal. Use paints that have APG's *Green Seal* approval.	☆
F.5 Special Waste Handling. Ensure proper handling of special wastes generated during construction activities, including asbestos wastes, lead-based paint debris, and other materials containing asbestos, lead, and hazardous constituents, as required under the federal Toxic Substances Control Act (TSCA), the federal Clean Air Act, and state and local laws.	
F.6 Integrate Solid Waste Management System into Facility Design. Integrate the solid waste management system into facility design. For example, design appropriately sized space and features to store waste for the reuse, recycling, disposal, and combustion with consideration to odor, visual impacts, and occupant and hauler accessibility (consider chute systems).	
F.7 Wastewater Recovery and Reuse. Capture wastewater generated during or after construction for reuse on or off site. Capture wastewater for use in dust suppression and to irrigate vegetation.	
WATER RESOURCES ***PROTECT AND CONSERVE WATER RESOURCES***	
Regulatory Requirements. Comply with the federal Clean Water Act, including wetland and discharge regulations (storm water and industrial discharge) and state and local laws (e.g., construction sites of five or more acres require a state NPDES General Permit for Construction).	☆
G.1 Storm Water Management and Site Layout. Consider surface grade and surface composition when locating and performing outdoor activities that potentially generate storm water pollution (e.g., locate hazardous material handling/storage and damaged vehicle parking on a level, paved surface).	
G.2 Storm Water Management and Landscape. Design landscape to maximize storm water infiltration and pollutant removal from storm water runoff. For example, plant vegetation along site perimeter and at pavement edges as appropriate to filter pollutants from storm water runoff prior to its discharge into storm drains and streams.	
G.3 Water-Conserving Design Features. Integrate water conservation features into the facility design. For example, automatic shutoff valves on faucets; low-flow aerators on faucets; reuse of gray water generated by washers, showers, and sinks for use in toilet-flushing or irrigation; and use of xeriscaping principles in landscape design (e.g., well-adapted plants, mulches, and minimal turf areas).	
G.4 Minimize Disturbance to Vegetation. Minimize disturbance to natural vegetation and trees by using previously developed sites, minimizing clearcutting and bulldozing of vegetation, and selectively cutting and trimming vegetation to gain site access.	
G.5 Integrated Pest Management (IPM). To control insects and weeds, use IPM practices instead of chemicals that have greater potential to impact water resources. IPM uses biological controls as first defense, consistent with water resource protection objectives.	

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G.6 Minimize Impervious Surface Creation. Limit use of impervious pavement since it limits storm water percolation, contributes to flooding and erosion, destroys habitat, and reduces soil fertility. For example, minimize parking space size, use porous pavement for residential/employee parking and walking paths, and design paved areas with dual-purpose functions, including storm water retention.	
G.7 Storm Water Pollution Prevention. Employ pollution prevention practices to control storm water pollution. For example, minimize exposure of rainwater and runoff to sediments, chemicals, and wastes; employ proper material storage and handling; quickly clean up spillage; clearly and permanently label storm drains.	
G.8 Spill Control. Designate accessible location(s) for fully stocked spill cleanup stations with easy access by site personnel to facilitate immediate response to an accidental spill or leak of fluids or materials. The spill station should be available to construction personnel and for permanent activity, depending upon use. Designate disposal location for spent absorbent materials.	
G.9 Sediment Control. Control sediment runoff from excavation and construction activities consistent with an approved sediment control plan. Permanent activity should control sediment through its comprehensive storm water management plan and structures. For example, infiltration trenches and oil/grit separators can remove suspended solids from storm water runoff.	
G.10 Groundwater Protection. Protect groundwater by testing underground piping for joint integrity before backfilling or by locating piping and tanks above ground to reduce potential for undetected leaks.	